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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,304	11/02/2001	Anuj Batra	TI-33612	9327

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EXAMINER
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LY, ANH VU H

ART UNIT	PAPER NUMBER
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2616

NOTIFICATION DATE	DELIVERY MODE
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09/19/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 10/004,304	<b>Applicant(s)</b> BATRA ET AL.	
	<b>Examiner</b> Anh-Vu H. Ly	<b>Art Unit</b> 2616	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 August 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 20,21,23,26,27 and 29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20,21,23,26,27 and 29 is/are rejected.
- 7) ☒ Claim(s) 26 and 27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>August 23, 2007</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 23, 2007 has been entered.

### ***Claim Objections***

2. Claims 26 and 27 are objected to because of the following informalities:

With respect to claim 26, in lines 7-8, replace "on in a response" with --in response--.

With respect to claim 27, in line 3, replace "the first channel" with --the selected channel--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 20, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garcia-Luna-Aceves et al. (US Pub 2002/0141479 A1) in view of Shellhammer et al (US Patent No. 7,039,358 B1). Hereinafter, referred to as Garcia-Luna-Aceves and Shellhammer.

With respect to claim 20, Garcia-Luna-Aceves discloses a method of communication in a frequency hopping wireless network using a time-division duplex (TDD) scheme having a plurality of time slots (Fig. 1) divide into a plurality of master-to-slave slots (Fig. 1, at frequency hop h1, t1 and t9 are used by node x) and a plurality of slave-to-master slots (Fig. 1, at frequency hop h1, t2-t8 are used by node y) comprising:

- coupling an enhanced master device with a slave device (Fig. 1, node x coupled to node y);

- initiating communication from the master device to the slave device on a channel selected from an original hopping sequence (Fig. 1, at frequency hop h1 and t1, node x initiates a communication between node x and node y by sending a RTR control packet to node y. Herein, node x is the master device and node y is the slave device, as considered by examiner. Further, frequencies h1-h5 are frequency hops of a hopping sequence);

- selecting a channel from a repeated channel adaptive hopping sequence if the slave device is an enhanced slave device and responding to the master device from the slave device on a channel selected from a repeated channel adaptive hopping sequence if the slave device is an enhanced slave device (page 5, 69<sup>th</sup> paragraph, it may be desirable to allow nodes exchanging data to continue hopping, such as in a multi-frequency mode, according to a different or second hopping sequence. Herein, node y can use a channel from a second hopping sequence to send data to node x to further reduce interference. Wherein, node y is an enhanced slave device for using a channel from a second hopping sequence and wherein the second hopping sequence is the repeated channel adaptive hopping sequence);

responding to the master device from the slave device on a channel selected from the original hopping sequence if the slave device is a legacy slave device (Fig. 1, at frequency hop h1 and t2, node y sends data to node x after receiving the RTR control packet. Herein, node y uses frequency h1 of the same hopping sequence as used by node x to send RTR control packet. Therefore, node y is a legacy slave device).

Garcia-Luna-Aceves does not disclose that wherein the plurality of master-to-slave slots are even slots and the plurality of slave-to-master slots are odd slots. Shellhammer discloses that the master transmitting on even slots and the slaves transmitting on odd slots (col. 7, lines 49-51). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the master transmitting on even slots and the slaves transmitting on odd slots in Garcia-Luna-Aceves's system, as suggested by Shellhammer, to coordinate data transmission.

With respect to claim 21, Garcia-Luna-Aceves discloses that wherein the slave responding to the master device comprising transmitting a packet to the master device on the selected channel (Fig. 1, node y sends data to node x on frequency hop h1), wherein the selected channel is used for transmission during entire length of the packet (page 4, 60<sup>th</sup> paragraph, at a data rate of 1 Mbps, four hundred millisecond hop time limit provides ample time for transmitting entire data packets and packet trains).

With respect to claim 23, Garcia-Luna-Aceves discloses that wherein the wireless network is a Bluetooth wireless network (page 2, 13<sup>th</sup> paragraph and Fig. 2 – a MAC protocol taking advantage of characteristics of FHSS radios operating in ISM bands while assuring that

transmissions are free of collisions. It is known that Bluetooth frequency band is also an ISM band, 2.4 GHz band).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 26, 27, and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Garcia-Luna-Aceves et al. (US Pub 2002/0141479 A1). Hereinafter, referred to as Garcia-Luna-Aceves.

With respect to claim 26, Garcia-Luna-Aceves discloses a system for communication in a frequency hopping wireless network comprising:

a master device (Fig. 1, at frequency hop h1, node x is the master device); and

at least one slave device communicatively coupled to the master device (Fig. 1, at frequency hop h1, node y is the slave device coupled to node x), wherein the master device is configured to initiate communication with the slave device on a channel selected from an original hopping sequence (Fig. 1, at frequency hop h1 and t1, node x initiates a communication between node x and node y by sending a RTR control packet to node y. Herein, node x is the

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master device and node y is the slave device, as considered by examiner. Further, frequencies h1-h5 are frequency hops of a hopping sequence); and

the slave device is configured to transmit data to the master device in response to the master device initiating the communication on a channel selected from a repeated channel adaptive hopping sequence if the slave device is an enhanced slave device (page 5, 69<sup>th</sup> paragraph, it may be desirable to allow nodes exchanging data to continue hopping, such as in a multi-frequency mode, according to a different or second hopping sequence. Herein, node y can use a channel from a second hopping sequence to send data to node x to further reduce interference. Wherein, node y is an enhanced slave device for using a channel from a second hopping sequence. The second hopping sequence is the repeated channel adaptive hopping sequence) or on a channel selected from the original hopping sequence if the slave device is a legacy slave device (Fig. 1, at frequency hop h1 and t2, node y sends data to node x after receiving the RTR control packet. Herein, node y uses frequency h1 of the same hopping sequence as used by node x to send RTR control packet).

With respect to claim 27, Garcia-Luna-Aceves discloses that wherein the slave responding to the master device comprising transmitting a packet to the master device on the selected channel (Fig. 1, node y sends data to node x on frequency hop h1), wherein selected channel is used for transmission during entire length of the packet (page 4, 60<sup>th</sup> paragraph, at a data rate of 1 Mbps, four hundred millisecond hop time limit provides ample time for transmitting entire data packets and packet trains).

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With respect to claim 29, Garcia-Luna-Aceves discloses that wherein the wireless network is a Bluetooth wireless network (page 2, 13<sup>th</sup> paragraph and Fig. 2 – a MAC protocol taking advantage of characteristics of FHSS radios operating in ISM bands while assuring that transmissions are free of collisions. It is known that Bluetooth frequency band is also an ISM band, 2.4 GHz band).

### ***Response to Arguments***

5. Applicant's arguments filed August 23, 2007 have been fully considered but they are not persuasive.

Applicant argues in page 8 that Garcia-Luna-Aceves does not disclose or suggest selecting a channel from a repeated channel adaptive hopping sequence if the slave device is an enhanced slave device or a channel from the original hopping sequence if the slave device is a legacy slave device. Examiner respectfully disagrees. Garcia-Luna-Aceves discloses (page 5, 69<sup>th</sup> paragraph) that it may be desirable to allow nodes exchanging data to continue hopping, such as in a multi-frequency mode, according to a different or second hopping sequence. Herein, node y can use a channel from a second hopping sequence to send data to node x to further reduce interference. Wherein, node y is an enhanced slave device for using a channel from a second hopping sequence and wherein the second hopping sequence is the repeated channel adaptive hopping sequence. Further, as illustrated in Fig. 1, at frequency hop h1 and t2, node y sends data to node x after receiving the RTR control packet. Herein, node y uses frequency h1 of the same hopping sequence as used by node x to send RTR control packet. Therefore, node y is a legacy slave device.



*Conclusion*

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gan et al (US Patent No. 7,027,418 B2) discloses approach for selecting communications channels based on performance.

Liang (US Patent No. 7,145,934 B2) discloses multi-channel signal transmission and reception for Bluetooth systems.

Souissi et al (US 2002/0075941 A1) discloses multiple access frequency hopping network with interference anticipation.

Chen et al (US Patent No. 7,068,702 B2) discloses method and apparatus for selective collision avoidance frequency hopping.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh-Vu H. Ly whose telephone number is 571-272-3175. The examiner can normally be reached on Monday-Friday 7:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to be 'S. L. L.', with a long horizontal stroke extending to the right.

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